leeches and earthworms. It is not yet clear just how many of these are new discoveries, though the number is in the hundreds, but it is estimated that anywhere from one to nine million ocean species remain to be found, making this haul just the tip of the iceberg.

The divers also placed little structures they refer to as doll's houses, but more formally known as Autonomous Reef Monitoring Systems (ARMS), on the ocean floor in the hope that marine animals will colonise them and can then be collected for study over the next three years. Researchers anticipate that many more new species remain to be found in these locations and the ARMS are one of several efforts to standardise collection methods so that research worldwide can be better compared. Scientists are also standardising methods for sampling biodiversity in dead corals, which can contain crustaceans, molluscs and echinoderms.

The Australian survey is part of an unprecedented global census of coral reefs, CReefs, one of the 17 Census of Marine Life projects. Coral reefs are highly threatened repositories of extraordinary biodiversity but little is known compared with terrestrial ecosystems.

CReefs, led by scientists at the Australian Institute of Marine Science, the Smithsonian Institution and the Pacific Islands Fisheries Center of the US National Oceanic and Atmospheric Administration, aims to census life in coral reef ecosystems, to improve access to information on coral reefs throughout the world, and to strengthen tropical taxonomic expertise. The biodiversity data generated will be made publicly available through the Ocean Biogeographic Information System (Obis; www.iobis.org) an initiative of the Census of Marine Life.

The success of the Australian studies on the Great Barrier Reef build on previous work including a three-week expedition to Hawaiian reefs in 2006. Researchers there discovered more than 100 possible new species and location records to help build crucial data on the reefs of the Hawaiian archipelago. The researchers also recorded many species familiar in other ocean areas but never before recorded in Hawaii.

Fruitful insights

Following on from the award-winning book *Seeds; Time Capsules of Life*, Wolfgang Stuppy and Rob Kesseler have now published a second volume on fruit, exploring the natural history of this vital entity in both the plant and animal world. Stuppy is the seed morphologist for the Millennium Seed Bank Project at the Royal Botanic Gardens, Kew. While seeds lie at the heart of his work, he has inevitably come across the range of fruits that often contain them, which has prompted the latest book revealing the often

Ripe for study: Two of the illustrations from the new book *Fruit: Edible, Inedible, Incredible* show the recognisable and the bizarre. (Photos: copyright Papadakis.)

highly bizarre forms they can take.

Rob Kesseler is a professor at Central Saint Martins College of Art and Design. He has had a long career of working with plants as a source of inspiration for his work and, since 2001, he has been working at Kew with microscopic plant material.

The inspiration for the new book comes from the role that fruits and seeds play in the survival of each species, which explains the many dispersal mechanisms that plants have developed during evolution. The strategies they take, whether they involve wind, water, humans and animals or the plant's own explosive triggers, are reflected in the vast range of different colours, sizes and shapes — some edible, some inedible and others just bizarre.

The authors have used a variety of approaches to produce the illustrations in the book. Scanning electron microscopy has been used to capture some of the forms while cross-sections reveal intricate interiors, berries and pods, nuts and other examples of botanical architecture and reproductive ingenuity. Black and white microscopic images have been coloured by Kesseler to highlight structure and function within the fruits that are almost too miniscule to be seen by the naked eye. Larger fruits, their flowers and some of their animal dispersers have been specially photographed for the book to produce a total of more than 250 colour illustrations.

The formation, development and demise of the fruits are described by Stuppy, who explains their vital role in the preservation and biodiversity of the planet.

Fruit: Edible, Inedible, Incredible. Wolfgang Stuppy and Rob Kesseler. Published by Papadakis, London. www.papadakis.net £35
ISBN: 978-1901092-74-5

Nigel Williams

Q & A

Jeannie T. Lee

Jeannie T. Lee is an Investigator of the Howard Hughes Medical Institute and Professor of Genetics (and Pathology) at Harvard Medical School and the Massachusetts General Hospital. She was an undergraduate at Harvard University where she majored in Biochemistry and Molecular Biology, and worked with Nancy Kleckner on the control of Tn10 transposition by antisense RNA. She then obtained M.D.-Ph.D degrees from the University of Pennsylvania School of Medicine, where she became interested in epigenetic regulation of human disease while a dissertation student with Robert L. Nussbaum. Afterwards, she trained briefly in Clinical Pathology at the Massachusetts General Hospital, before joining Rudolf Jaenisch at the Whitehead Institute as a postdoctoral fellow. Since she became independent in 1997, her lab's interests have included X-inactivation, imprinting, the emerging link between noncoding RNA and chromatin control, and the evolutionary history of sex chromosomes and dosage compensation. She is also passionately interested in the interaction between environment and genome and imagines pursuing this during the next stage of her career. She has received the Basil O'Connor Scholar Award from the March of Dimes and the Pew Scholars Award from the Pew Foundation. Currently, she serves on NIH study section (grant review panel), is an Associate Editor for the Public Library of Science (Genetics), and is co-organizing the next Gordon Conference in Epigenetics.

What turned you onto science? I was sure that I would become a physician, but then I took a major in physics and chemistry in college. In my sophomore year, I had an epiphany: after a lecture course by Mark Ptashe, Tom Maniatis, and Doug Melton, I realized I ought to be in molecular biology. After one semester in the Kleckner lab, however, Nancy told me I had to work harder and think better. I tried. A career in basic science was not an obvious substitute for medicine. But soon I learned that experimental discovery is one of the most rewarding experiences in life. Twenty years later, I am a basic scientist — still working on noncoding RNA — and still getting that high out of science.

What attracted you to X-inactivation? It was easy to fall in love with this problem — everything about it is like a great detective story. In Bob Nussbaum's lab as a PhD student, I was already well aware of the mystery, but not until I heard the *XIST* story from Hunt Willard's group did I think seriously about working on it. *XIST* encodes an untranslated RNA that shows the reverse pattern of expression from all other X-linked genes in female mammals – The RNA is expressed only from the 'inactive' X and spreads all over that chromosome to form an RNA blanket. An RNA that sticks to a chromosome and regulates its gene expression was just too interesting to pass up! Rudolf's lab was a great place to test the ideas in mice, so that is where I got my start in X-inactivation. In Rudolf's lab, I transplanted a 450 kilobase region of the X-inactivation center to an autosome and found that it can serve as a silencing center at the ectopic location. This discovery gave me the start I needed to identify new regulatory elements in my own lab. The transgene analysis paved the way for the discovery of *Tsix* and *Xite*.

If you could do it all over again, would you choose the same career path? This is the best job in the world. Sometimes (only sometimes) I think I might skip medical school next time around. I was not a natural medical student, but I learned many things that are put into daily practice in a non-obvious way. For example, mouse embryology is much easier when one has been taught human anatomy and physiology. Applying concepts in X-inactivation and epigenetics to human health also comes much more easily. Although my lab has focused exclusively on basic science up to this point, I have not abandoned plans for medicine at all. My plan is to link epigenetics to human disease during the next stage of my career. I have recently steered